

REMARKS

Claims 1-11 are pending in the patent application. Claims 1-11 have been cancelled without prejudice or disclaimer. New claims 12-21 have been added. No new matter has been added.

Rejections under 35 U.S.C. §112

Claims 1-10 are rejected under 35 U.S.C. §112 second paragraph for being indefinite. Claims 1-10 have been cancelled. It is believed that new claims 12-21 comply with 35 U.S.C. §112.

Rejections under 35 U.S.C. §102

Claims 1 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by the French publication FR 2747003 (hereinafter FR '003). Although claims 1 and 7 are cancelled, it is instructive to show that new independent claim 12 is not anticipated by FR '003.

FR '003 discloses a tracking system that enables a spotlight to follow an actor on a stage. The actor carries an ultrasound source or transmitter (1). Ultrasound receivers (4, 5, 14) are fixed to the directional unit, i.e. the physical device that maintains an alignment with the moving subject. The receivers are connected to a signal processing unit (9) in order to determine the control signals that are sent to motor(s) (11). The motors, in turn, adjust the orientation of the directional unit.

In contrast, new claim 12 recites an audio signal source and a sound irradiation system, neither of which is disclosed by FR '003. Furthermore, claim 12 discloses a position signal that has location information, which is generated by a locating device attached to the audio signal source. In FR '003, the location information is generated in a signal processing unit (9), which is clearly separate from the source.

Because claims 13-21 depend from claim 12 and contain all the limitations thereof, claims 13-21 are not anticipated by FR '003 and should be placed in condition for allowance.

Rejections under 35 U.S.C. §103

Claims 2-4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over FR '003 in view of Mogavero, et al; claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over FR 2747003 in view of Metcalf; and claims 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over FR 2747003 in view of Dowling Jr, et al. Although claims 1-11 are cancelled, it is instructive to show that new independent claim 12 is not obvious in view of any of the above prior art references.

FR '003 is directed toward a tracking system that enables a spotlight to follow an actor on stage. An ultrasound transmitter (1) is attached to the actor, and a plurality of ultrasound receivers (4, 5, 14) drive a signal processing unit (9), which generates control signals for a motor (11). The processing unit may include phase comparators, able to detect changes in signals received by the different ultrasound receivers which indicate the movement of the moving subject. The presence of phase comparators in the processing unit (9) shows that the control signals are generated by a device external to the ultrasound transmitter. In contrast, claim 12 recites a locating device attached to the audio signal source, which produces the position signal. Indeed, there is nothing in FR '003 to suggest locating any of the functions of the processing unit with the ultrasound transmitter, and therefore, FR '003 teaches away from a locating device attached to the audio signal source.

As indicated by the examiner, Mogavero teaches the desirability of using a radio frequency system rather than an ultrasonic system to determine the position of a moving performer in an indoor environment in order to avoid the difficulties caused by the reflection of sonic signals from floors and other structures. As with FR '003, the control signal is generated by a device external to the transmitter. In Mogavero, the detectors (18, 20, 22, 24) are fed to a phase detector (26). The phase detector outputs are then fed to a computer (46), which performs necessary positional calculations. (column 5, lines 45-47). The transmitter (1) preferably emits a single frequency constant amplitude signal (column 2, lines 62-65), which clearly cannot contain any positional information. As with FR '003, there is nothing in Mogavero to suggest

locating any of the servo generation functions with the transmitter, and therefore Mogavero teaches away from a locating device attached to the audio signal source.

As indicated by the examiner, Metcalf teaches the desirability of using GPS to monitor the movement of a performer (page 12, paragraph 74). Indeed, Metcalf mentions a variety of position monitoring means in addition to GPS, including a variety of electro-mechanical switches, electro-optical switches, transducers, piezo elements, and so on. The last sentence of paragraph 74 reads, "Monitorable motion changes are transmitted through suitable signal transmission means (e.g. wire, fiber optic cable, or wireless transmissions, etc.) to image processing means 50 to provide control signal to image switch means and/or image modulation means to affect image output." Using the language of Metcalf, the control signal is generated by an image processing means, which is explicitly external to the motion monitor, as indicated by the presence of "signal transmission means".

Furthermore, Metcalf uses the motion monitor only for affecting images (see the last sentences in paragraphs 74, 77, 78, 79 and 80), and no mention is made of using the motion monitor to control a sound irradiation system, as recited by claim 12.

Metcalf does discuss the panning of audio (see paragraph 42) to mimic the location of objects in an image, but does not use a position signal as recited by claim 12. Metcalf gives an example of a NASCAR race, in which an array of microphones is placed around the perimeter of the racetrack, where each microphone provides a discrete audio signal to a respectively located speaker. The microphones are fixed in place, and an amplified signal is provided to a particular speaker only when a car is in close proximity to a given microphone. In Metcalf's embodiment, the microphones (i.e., the first audio signal source) do not move, and hence, there is no corresponding position signal in Metcalf.

Although there are both a GPS transmitter (paragraph 74) and audio panning (paragraph 42) present in Metcalf, the applicant argues that it is not obvious to combine the two, as is recited by claim 12. Indeed, Metcalf draws no connection between the two elements, and presumably would have done so if it were an obvious embodiment.

As noted by the examiner, Dowling teaches the desirability of tracking a speaker by tracking the motion of the microphone being used (paragraphs 55, 61-62, 67-68). Dowling is directed toward a so-called "smart" lighting system, in which lighting elements are modulated more quickly than the eye can respond, and can therefore communicate wirelessly with other equipment in a room. As with FR '003 and Mogavero, discussed above, Dowling tracks the position of a source through calculations performed external to the signal source. For instance, Dowling teaches tracking performed "by triangulation or other means", (paragraph 62) demonstrating that the position signal is not generated at the source. Indeed, the advantage of Dowling is simplicity, and the potential elimination of complex wiring systems. One skilled in the art would apply the teaching of Dowling to remove a position signal generated at the source, and rely on the interconnected lighting sources to generate the position signal at a central, external location. Dowling therefore teaches against producing a position signal at the locating device, and teaches away from claim 12.

CONCLUSION

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. The amendments clarify the patentable invention without adding new subject matter. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Brenda L. Jurgens at (952) 253-4128.

Respectfully submitted,

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